

## Biomimetic Adhesives for Biomedical and Other Industrial Applications

**Track Code:** 2018-WILK-68499

**Categories:**

- Chemistry and Chemical Analysis
- Materials and Manufacturing

**Keywords:**

- Adhesives
- Biopolymer
- Biotechnology
- Chemistry and Chemical Analysis
- Materials and Manufacturing
- Materials Science
- Mechanical Properties
- Polymers

Researchers at Purdue University have developed a new glue-like copolymer adhesive by mimicking proteins in marine species such as oysters and mussels. The adhesive shows promise in myriad applications including biomedical, automotive, aerospace, construction, and military and defense. In making the new adhesive, the researchers addressed the need for adhesives that have both high strength and toughness; usually only one of these material properties is achievable without sacrificing the other. The Purdue adhesives are made with hydrogen-bonding networks for providing toughness. A degree of ductility can be seen prior to material failure. The unparalleled adhesives have been characterized by several methods (e.g., NMR and gel permeation chromatography) and have been tested for bonding substrates including metals, wood, and plastics.

**Advantages:**

- Ductile
- Strong
- Waterproof
- Versatile

**Potential Applications:**

- Biomedical
- Automotive
- Aerospace
- Construction

**People:**

- Wilker, Jonathan James (Project leader)
- Mazzotta, Michael G
- North, Michael A.
- Putnam, Amelia Ann

**Intellectual Property:**

**Application Date:** December 31, 2018

**Type:** Utility Patent

**Country of Filing:** United States

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** December 31, 2017

**Type:** Provisional-Patent

**Country of Filing:** United States

**Patent Number:** (None)

**Issue Date:** (None)

**Contact OTC:**

Purdue Office of Technology Commercialization  
1801 Newman Road  
West Lafayette, IN 47906

Phone: (765) 588-3475

Fax: (765) 463-3486

Email: [otcip@prf.org](mailto:otcip@prf.org)